

Amdt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

REMARKS/ARGUMENTS

Drawings

The Examiner has not indicated in the Office Action Summary (Item 10) whether the drawing have been accepted or objected to by the Examiner. The Examiner is requested to indicate that the drawings have been accepted.

Claim Rejections under 35 U.S.C. 103(a)

The Examiner has rejected pending claims 1-45. The Examiner rejected claims 1, 10-14, 23-27, 36-39 under 35 U.S.C. 103(a) as being unpatentable over Xu (US 6,324,581) in view of Enoki (US 5,873,085). Claims 2-5, 9, 15-18, 22, 28-31 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Xu in view of Enoki and in view of Whidby (US patent publication No. 2003/0110264 A1). Claims 6-18, 19-21, and 32-34 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Xu, in view of Enoki, and in view of Porcar ("File Migration in Distributed Systems" California Univ., Berkeley, Lawrence, Berkeley Lab, copyright 1982, pages 114-135). Claims 40-45 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Xu, in view of Enoki, in view of Whidby, and in view of Porcar. Applicants traverse the rejections of pending claims 1-45.

The Applicants had conducted an interview with the Examiner before preparing the current response.

Amended Independent claims 1, 14, and 27

Independent claims 1, 14, 27 are for controlling and providing access to a file to a remote computer over a network, and require:

maintaining metadata about files maintained at remote storage locations;

Amdt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

receiving a request, at a server, from the remote computer over the network, wherein the request includes a filename corresponding to a requested file;

determining from the metadata, by the server, one remote storage location address associated with the filename where the requested file is located;

updating, by the server, the metadata for the requested file; and

sending, by the server, the one remote storage location address to the remote computer, wherein the one remote storage location address where the requested file is located is more proximate to the remote computer than to the server.

The Examiner rejected the claims 1, 14, 27 as being unpatentable over Xu (col. 3, lines 61-66, col. 9: lines 59-63; col. 10: lines 12-25) in view of Enoki (Abstract; Fig 1, reference numeral 109c; col. 13, line 59 - col. 14, line 32). Applicants traverse.

The claims require that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server and nowhere does the cited Xu or the cited Enoki teach or suggest the claim requirement that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server.

The Examiner has mentioned in Page 3 of the Office Action, that cited Enoki (Abstract; Fig 1, reference numeral 109c; col. 13, line 59 - col. 14, line 32) discloses the claim requirements that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server. Applicants respectfully submit that the cited Enoki does not teach or suggest the claim requirements that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server.

The Examiner cited Abstract of the cited Enoki discusses a file management system with a plurality of servers and a plurality of terminals that share file services provided by the plurality of servers. A management table manages files stored in the plurality of servers by using virtual file identifiers. A request analyzing section checks the management table by using the virtual file

Amdt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

identifier contained in a file access request from a terminal and determines the server where the real data of the requested file is stored.

The Examiner cited reference number 109c of FIG. 1 of the cited Enoki is a client computer from which requests are made over the network 111 of the cited Enoki to server computers.

The Examiner cited col. 13, line 59 - col. 14, lines 32 of the cited Enoki discusses "the processing flow in the server computer 101a in which the virtual file management apparatus 102 is operating. First, the receiving section 107 receives a file access request from the client computer 109a (step S201). Next, the request analyzing section 106 checks the virtual file identifier contained in the received file access request, and determines the corresponding server computer name 101a or 101b by referencing the management table 103 (step S202). Next, using data in the management table 103, the request modification processing section 110 first modifies the file access request into a file access request such that the server computer 101a or 101b determined by the request analyzing section 106 can directly respond to the client computer 109a, and then instructs the transmitting section 108 to transmit the modified file access request to the server computer 101a or 101b (step S203). The transmitting section 108 then transmits the file access request to the server computer 101a or 101b (step S204). The request processing section 105 in the server computer 101a or 101b that received the modified file access request creates response data to the file access request by using the file system 104a or 104b, and transmits the response data to the client computer 109a."

Therefore the cited Enoki discusses that on receiving a request from a client computer a determination is made to select a server computer for responding to the request from the client computer. However, nowhere does the cited Enoki teach or suggest the claim requirement that the one remote storage location address where the requested file is located is more proximate to the remote computer than to the server.

For example, in the Examiner cited FIG. 1 of the cited Enoki, there are two server computers 101a and 101b, where the server computer 101a has a management table 103. While a

Amtd. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010038US1
Firm No. 0018.0102

client computer may make a request to the server computer 101a, the management table in the server computer 101a may be used to indicate that the request be satisfied from the file system of the servcr computer 101b. In the cited Enoki, the server computers 101a and 101b are coupled by a network to the client computers 109a, 109b, 109c. However, there is no teaching or suggestion in the cited Enoki of the claim requirement that the one remote storage location address where the requested file is located is more proximate to the remote computer than to the server. The determination by the management table 103 of the cited Enoki of selected server computer to return the response to client is not based on the proximity of the selected server computer to the client that made the request.

Should the Examiner maintain the rejection, the Examiner is requested to indicate which lines of the cited Enoki or the cited Xu teach or suggest the claim requirement that the one remote storage location address where the requested file is located is more proximate to the remote computer than to the server. The servers are merely coupled to the clients over a network in the cited Enoki.

Additionally, the Examiner has modified the teachings of the cited Xu with the teachings of the cited Enoki to arrive at the claim requirements. The Examiner has mentioned that the motivation to minimize delay time for a data access request would motivate locating the one the one remote storage location address more proximate to the remote computer than to the server. Applicants submit that the Examiner's modification of the cited Xu with the teachings of the cited Enoki is improper because of the following reasons:

(a) The cited Xu discusses sending a request for metadata (Xu: col. 10, lines 12-14) from a client to a data mover of the file server. The data mover of the file server returns the metadata to the client. The client uses the metadata to formulate a read or write request to a file system, where the file server includes the file system (Xu: col. 9, lines 60-62) in a cached disk array. The client may write new file attributes to the data mover. The claims require that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server. The cited Xu discusses that the file is located in the file system (Xu: FIG. 3,

Amtd. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

reference numeral 62) where the file server includes the file system (Xu: col. 9, lines 60-62) in a cached disk array. Therefore, in the cited Xu the file is located in the server. Since the file is located in the server, in the cited Xu the file is more proximate to the server than to the remote computer and the cited Xu teaches away from the claim requirement of the one remote storage location address where the requested file is located being more proximate to the remote computer than to the server. Since the cited Xu teaches away from the claim requirement of the one remote storage location address where the requested file is located being more proximate to the remote computer than to the server, the teachings of the cited Enoki cannot be used to modify the teachings of the cited Xu to arrive at the claim requirements that the one remote storage location address where the requested file is located being more proximate to the remote computer than to the server. The modification being suggested by the Examiner would make the system of the cited Xu inoperable as the file would no longer be located in the file system (Xu: FIG. 3, reference numeral 62) where the file server includes the file system (Xu: col. 9, lines 60-62) in a cached disk array. Instead, the file would be located elsewhere in some other server and this would be contrary to the teachings of the cited Xu, and the system of the cited Xu would not be able to respond to the requests from the client.

(b) The motivation provided by the Examiner that there would be reduction in traffic on a WAN and a minimization of the delay time for data access requests is improper. Reduction in traffic on a WAN and a minimization of the delay time for data access requests could be achieved by storing the requested file in the client itself without making any requests to any server.

Alternately, reduction in traffic on a WAN and a minimization of the delay time for data access requests could be achieved by determining least congested paths and directing files through these least congested paths. The motivation provided by the Examiner of reduction in traffic on a WAN and a minimization of the delay time for data access requests is improper because this motivation could lead to many different results and not to the claim requirements.

Additionally, the Examiner has in his office action not addressed the argument provided by the Applicants in the previous response that the claims require the server to update the

Amndt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

metadata for the requested file and that the Examiner cited Xu discusses that the client may write new file attributes to the data mover of the server (Xu: col. 10: lines 20-22). Nowhere does the cited Xu teach or disclose the claim requirement of the server updating the metadata for the requested file.

For the above reasons, claims 1, 14, and 27 are patentable over the cited art.

Independent Claims 10, 23, 36

Independent claims 10, 23, 36 are for accessing a file in a source code management system, and comprises:

sending, from a client, a first request for a file to a server;

receiving, at the client, a storage location address containing the file in response to the first request, wherein the storage location address containing the file is located is more proximate to the client than to the server;

sending, from the client, a second request to the storage location address; and

receiving, at the client, an access to the file from the storage location address.

The Examiner has rejected claims 10, 23, 36 as being unpatentable over Xu (col. 3, lines 61-65, col. 10: lines 12-22) in view of Enoki (Abstract; Fig 1, reference numeral 109c; col. 13, line 59 - col. 14, line 32). Applicants traverse. Applicants traverse.

The claims require that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server and nowhere does the cited Xu or the cited Enoki teach or suggest the claim requirement that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server.

The Examiner has mentioned in Page 3 of the Office Action, that cited Enoki (Abstract; Fig 1, reference numeral 109c; col. 13, line 59 - col. 14, line 32) discloses the claim requirements that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server. Applicants respectfully submit that the

Amtd. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

cited Enoki does not teach or suggest the claim requirements that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server.

The Examiner cited Abstract of the cited Enoki discusses a file management system with a plurality of servers and a plurality of terminals that share file services provided by the plurality of servers. A management table manages files stored in the plurality of servers by using virtual file identifiers. A request analyzing section checks the management table by using the virtual file identifier contained in a file access request from a terminal and determines the server where the real data of the requested file is stored.

The Examiner cited reference number 109c of FIG. 1 of the cited Enoki is a client computer from which requests are made over the network 111 of the cited Enoki to server computers.

The Examiner cited col. 13, line 59 - col. 14, lines 32 of the cited Enoki discusses "the processing flow in the server computer 101a in which the virtual file management apparatus 102 is operating. First, the receiving section 107 receives a file access request from the client computer 109a (step S201). Next, the request analyzing section 106 checks the virtual file identifier contained in the received file access request, and determines the corresponding server computer name 101a or 101b by referencing the management table 103 (step S202). Next, using data in the management table 103, the request modification processing section 110 first modifies the file access request into a file access request such that the server computer 101a or 101b determined by the request analyzing section 106 can directly respond to the client computer 109a, and then instructs the transmitting section 108 to transmit the modified file access request to the server computer 101a or 101b (step S203). The transmitting section 108 then transmits the file access request to the server computer 101a or 101b (step S204). The request processing section 105 in the server computer 101a or 101b that received the modified file access request creates response data to the file access request by using the file system 104a or 104b, and transmits the response data to the client computer 109a."

Amtd. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

Therefore the cited Enoki discusses that on receiving a request from a client computer a determination is made to select a server computer for responding to the request from the client computer. However, nowhere does the cited Enoki teach or suggest the claim requirement that the one remote storage location address where the requested file is located is more proximate to the remote computer than to the server.

For example, in the Examiner cited FIG. 1 of the cited Enoki, there are two server computers 101a and 101b, where the server computer 101a has a management table 103. While a client computer may make a request to the server computer 101a, the management table in the server computer 101a may be used to indicate that the request be satisfied from the file system of the server computer 101b. In the cited Enoki, the server computers 101a and 101b are coupled by a network to the client computers 109a, 109b, 109c. However, there is no teaching or suggestion in the cited Enoki of the claim requirement that the one remote storage location address where the requested file is located is more proximate to the remote computer than to the server. The determination by the management table 103 of the cited Enoki of selected server computer to return the response to client is not based on the proximity of the selected server computer to the client that made the request.

Should the Examiner maintain the rejection, the Examiner is requested to indicate which lines of the cited Enoki or the cited Xu teach or suggest the claim requirement that the one remote storage location address where the requested file is located is more proximate to the remote computer than to the server. The servers are merely coupled to the clients over a network in the cited Enoki.

Additionally, the Examiner has modified the teachings of the cited Xu with the teachings of the cited Enoki to arrive at the claim requirements. The Examiner has mentioned that the motivation to minimize delay time for a data access request would motivate locating the one the one remote storage location address more proximate to the remote computer than to the server. Applicants submit that the Examiner's modification of the cited Xu with the teachings of the cited Enoki is improper because of the following reasons:

Amtd. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

(a) The cited Xu discusses sending a request for metadata (Xu: col. 10, lines 12-14) from a client to a data mover of the file server. The data mover of the file server returns the metadata to the client. The client uses the metadata to formulate a read or write request to a file system, where the file server includes the file system (Xu: col. 9, lines 60-62) in a cached disk array. The client may write new file attributes to the data mover. The claims require that the one remote storage location address where the requested file is located be more proximate to the remote computer than to the server. The cited Xu discusses that the file is located in the file system (Xu: FIG. 3, reference numeral 62) where the file server includes the file system (Xu: col. 9, lines 60-62) in a cached disk array. Therefore, in the cited Xu the file is located in the server. Since the file is located in the server, in the cited Xu the file is more proximate to the server than to the remote computer and the cited Xu teaches away from the claim requirement of the one remote storage location address where the requested file is located being more proximate to the remote computer than to the server. Since the cited Xu teaches away from the claim requirement of the one remote storage location address where the requested file is located being more proximate to the remote computer than to the server, the teachings of the cited Enoki cannot be used to modify the teachings of the cited Xu to arrive at the claim requirements that the one remote storage location address where the requested file is located being more proximate to the remote computer than to the server. The modification being suggested by the Examiner would make the system of the cited Xu inoperable as the file would no longer be located in the file system (Xu: FIG. 3, reference numeral 62) where the file server includes the file system (Xu: col. 9, lines 60-62) in a cached disk array. Instead, the file would be located elsewhere in some other server and this would be contrary to the teachings of the cited Xu, and the system of the cited Xu would not be able to respond to the requests from the client.

(b) The motivation provided by the Examiner that there would be reduction in traffic on a WAN and a minimization of the delay time for data access requests is improper. Reduction in traffic on a WAN and a minimization of the delay time for data access requests could be achieved by storing the requested file in the client itself without making any requests to any server.

Amtd. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

Alternately, reduction in traffic on a WAN and a minimization of the delay time for data access requests could be achieved by determining least congested paths and directing files through these least congested paths. The motivation provided by the Examiner of reduction in traffic on a WAN and a minimization of the delay time for data access requests is improper because this motivation could lead to many different results and not to the claim requirements.

For the above reasons claims 10, 23, and 36 are patentable over the cited art.

Dependent claims 2-9, 11-13, 15-22, 24-26, 28-35, 37-39

The Examiner has also rejected pending claims 2-9, 11-13, 15-22, 24-26, 28-35, 37-39 that depend on the pending independent claims 1, 14, 27, 10, 23, or 36. Applicants traverse these rejections. Applicants submit that these claims are patentable over the cited art because they depend from claims 1, 14, 27, 10, 23, or 36 which are patentable over the cited art for the reason discussed above, and because the combination of the limitations in the dependent claims 2-9, 11-13, 15-22, 24-26, 28-35, 37-39 and the base and intervening claims from which they depend provide further grounds of distinction over the cited art.

Claims 3, 16, 29

Claims 3, 16, 29 depend on dependent claims 2, 15, 28 respectively that depend from claims 1, 14, 27 respectively. Therefore, claims 3, 16, 39 include the following requirements in addition to the requirements of claims 1, 14, 27: (a) the remote computer is a source code management system client (b) the one remote storage location address identifies a storage device that is at a geographical location closer to the remote computer than a location of the metadata and (c) the server that received the request from the remote computer directly communicates the one storage location address for retrieval of the requested file to the network for transmission to the remote computer, based on the received request.

Amtd. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

The Examiner has rejected claims 3, 16, 29 under 35 U.S.C. 103(a) as being unpatentable over Xu, in view of Enoki, and further in view of Whidby.

The claims require that the one remote storage location address identifies a storage device that is at a geographical location closer to the remote computer than a location of the metadata as this claim requirement is neither taught or suggested by the cited Xu, the cited Enoki, or the cited Whidby.

The Examiner has mentioned in Page 11 of the Office Action, that cited Enoki (Abstract; Fig 1, reference numeral 109c; col. 13, line 59 - col. 14, line 32) discloses the claim requirements that the one remote storage location address identifies a storage device that is at a geographical location closer to the remote computer than a location of the metadata.

The Examiner cited Abstract of the cited Enoki discusses a file management system with a plurality of servers and a plurality of terminals that share file services provided by the plurality of servers. A management table manages files stored in the plurality of servers by using virtual file identifiers. A request analyzing section checks the management table by using the virtual file identifier contained in a file access request from a terminal and determines the server where the real data of the requested file is stored.

The Examiner cited reference number 109c of FIG. 1 of the cited Enoki is a client computer from which requests are made over the network 111 of the cited Enoki to server computers.

The Examiner cited col. 13, line 59 - col. 14, lines 32 of the cited Enoki discusses "the processing flow in the server computer 101a in which the virtual file management apparatus 102 is operating. First, the receiving section 107 receives a file access request from the client computer 109a (step S201). Next, the request analyzing section 106 checks the virtual file identifier contained in the received file access request, and determines the corresponding server computer name 101a or 101b by referencing the management table 103 (step S202). Next, using data in the management table 103, the request modification processing section 110 first modifies the file access request into a file access request such that the server computer 101a or 101b

Amdt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

determined by the request analyzing section 106 can directly respond to the client computer 109a, and then instructs the transmitting section 108 to transmit the modified file access request to the server computer 101a or 101b (step S203). The transmitting section 108 then transmits the file access request to the server computer 101a or 101b (step S204). The request processing section 105 in the server computer 101a or 101b that received the modified file access request creates response data to the file access request by using the file system 104a or 104b, and transmits the response data to the client computer 109a."

Therefore the cited Enoki discusses that on receiving a request from a client computer a determination is made to select a server computer for responding to the request from the client computer. However, nowhere does the cited Enoki teach or suggest the claim requirement that the one remote storage location address identifies a storage device that is at a geographical location closer to the remote computer than a location of the metadata.

For example, in the Examiner cited FIG. 1 of the cited Enoki, there are two server computers 101a and 101b, where the server computer 101a has a management table 103. While a client computer may make a request to the server computer 101a, the management table in the server computer 101a may be used to indicate that the request be satisfied from the file system of the server computer 101b. In the cited Enoki, the server computers 101a and 101b are coupled by a network to the client computers 109a, 109b, 109c. However, there is no teaching or suggestion in the cited Enoki of the claim requirement that the one remote storage location address identifies a storage device that is at a geographical location closer to the remote computer than a location of the metadata. The determination by the management table 103 of the cited Enoki of selected server computer to return the response to client is not based on the geographical location of the selected server computer to the client that made the request.

Should the Examiner maintain the rejection, the Examiner is requested to indicate which lines of the cited Enoki or the cited Xu or the cited Whidby teach or suggest the claim requirements that the one remote storage location address identifies a storage device that is at a

Arndt, dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

geographical location closer to the remote computer than a location of the metadata. The servers are merely coupled to the clients over a network in the cited Enoki.

Additionally the motivation provided by the Examiner (in page 20 of the office action) to modify the cited Xu with the teachings of the cited Enoki and the cited Whidby, that there would be an improvement in traffic on a WAN and a shortening of the delay time for data access requests is improper. Improvement in traffic on a WAN and a shortening of the delay time for data access requests could be achieved by storing the requested file in the client itself without making any requests to any server. Alternately, improvement in traffic on a WAN and a shortening of the delay time for data access requests could be achieved by determining least congested paths and directing files through these least congested paths. The motivation provided by the Examiner of improvement in traffic on a WAN and a shortening of the delay time for data access requests is improper because this motivation could lead to many different results and not to the claim requirements that the one remote storage location address identifies a storage device that is at a geographical location closer to the remote computer than a location of the metadata.

Additionally, using the cited Whidby and the cited Enoki to modify the system of the cited Xu to arrive at the claim requirements of claims 3, 16, 29 would render the system of the cited Xu inoperable because the source code would be distributed across multiple servers in the system of cited Xu, and the version control method of the cited Whidby could not be applied to the system of the cited Xu.

If as the Examiner indicates the system of the cited Xu were modified with the teachings of the cited Whidby, then the system of the cited Xu would have files distributed in a plurality of server nodes and a geographically closer would have to be selected for a response from a client. The version control discussed in the cited Whidby cannot be used to modify the system of the cited Xu where the files are distributed in a plurality of server nodes and a geographically closer server would have to be selected for a response from a client. In such a case, the geographically closer node would also have to maintain the most current version of the requested file as is the case in a source code management system and such teachings or suggestions are not provided in

Amdt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

the cited Xu, the cited Whidby or the cited Enoki. Returning a file from the geographically closer server computer to the client arrived at by modifying the cited Xu with the cited Enoki may be allow the sending of the correct version of the file in a version control system (i.e., not implement a source code management system) if the version control system of the cited Whidby were used to modify the system of the cited Xu. Therefore modifying the cited Xu with the cited Whidby and the cited Enoki does not teach or suggest the claim requirements that (a) the remote computer is a source code management system client (b) the one remote storage location address identifies a storage device that is at a geographical location closer to the remote computer than a location of the metadata and (c) the server that received the request from the remote computer directly communicates the one storage location address for retrieval of the requested file to the network for transmission to the remote computer, based on the received request.

For the above reasons, claims 3, 16, 29 are patentable over the cited art.

Claims 4, 17, 30

Claims 4, 17, 20 depend on claims 3, 16, 29 respectively, wherein the request is for checking-out the requested file corresponding to the filename, and further comprising:

locking the requested file;

returning a response code to the remote computer indicating that file check-out is successful; and

updating the metadata indicating that the requested file is checked-out and locked.

The Examiner has rejected claims 4, 17, 30 under 35 U.S.C. 103(a) as being unpatentable over Xu, in view of Enoki, and further in view of Whidby.

Nowhere does the Examiner cited Xu (col. 9, lines 59 - col. 10, lines 25) [or the cited Enoki or the cited Whidby] teach or suggest the following claim requirements:

- (a) returning a response code to the remote computer indicating that file check-out is successful
- (b) updating the metadata indicating that the requested file is checked-out and locked.

Amtd. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

The cited Xu discusses that the data mover responds by placing an appropriate lock on the file to be accessed and returning metadata to the client. Should the Examiner maintain the rejection the Examiner is requested to indicate where the cited Xu (or the cited Enoki, or the cited Whidby) teach or suggest the claim requirement of:

- (a) returning a response code to the remote computer indicating that file check-out is successful
- (b) updating the metadata indicating that the requested file is checked-out and locked.

For the above reasons claims 4, 17, 30 are patentable over the cited art.

Claims 5, 18, 31

Claims 5, 18, 31 depend on claims 3, 16, 29 respectively, wherein the request is for checking-in the requested file corresponding to the filename, and further comprising:

- updating the metadata indicating the requested file is unlocked; and
- returning a response code indicating that the file check-in is successful.

Nowhere does the Examiner cited Xu (col. 10, lines 17-25) [or the cited Enoki or the cited Whidby] teach or suggest the following claim requirements:

- (a) updating the metadata indicating the requested file is unlocked;
- (b) returning a response code indicating that the file check-in is successful.

The Examiner cited col. 10, lines 17-25 of the cited Xu discusses placing appropriated locks on the file to be accessed, and returning metadata including pointers to where the data to be accessed is stored in the file system. The client may write the new file attributes to the data mover after the data is written to the file system.

Should the Examiner maintain the rejection of the claims, the Examiner is requested to indicate where the cited Xu (or the cited Enoki, or the cited Whidby) teach or suggest the claim requirements of:

- (a) updating the metadata indicating the requested file is unlocked;
- (b) returning a response code indicating that the file check-in is successful.

For the above reasons claims 5, 18, 31 are patentable over the cited art.

Amdt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

Claims 6, 19, 32

Claims 6, 19, 32 depend on claims 1, 14, 27 respectively and further require:

The method of claim 1, further comprising:

processing a pattern of requests for the requested file received from remote computers at different geographical locations;

determining a plurality of remote storage locations based on the pattern of requests for the requested file;

storing the requested file corresponding to the filename at the determined plurality of remote storage locations; and

saving a correspondence between the requested file and storage location addresses corresponding to the determined plurality of remote storage locations in the metadata.

The Examiner has rejected claims 6, 19, 32 as being unpatentable under 35 U.S.C. 103(a) as being unpatentable over Xu in view of Enoki and Porcar. Applicants traverse.

The claims require:

(a) determining a plurality of remote storage locations based on the pattern of requests for the requested file;

(b) storing the requested file corresponding to the filename at the determined plurality of remote storage locations;

and these requirements are not taught or suggested by the cited Porcar (Chapter 5: summary; section 5.2 Migration Policies; section 5.3 Experimental results).

The cited Porcar discusses file migration in distributed computer systems that maintain multiple copies of files. Files are moved around in a distributed computer system based on certain policies in response to the referencing of files, such as updates of files.

The claims require determining a plurality of remote storage locations based on the pattern of requests for the requested file and storing the requested file corresponding to the filename at the determined plurality of remote storage locations. The cited Porcar teaches away

Amdt. dated June 21, 2005
Reply to Office action of 04/21/2005.

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

from the claim requirements because the cited Porcar maintains the master copy as local to the user updating the file (cited Porcar: page 121, line 19 included the third paragraph of page 121 that starts with "As we described in section 5.1.1....."). In page 117 it is indicated in the cited Porcar in 5.1.1. that "for each file, there is at least one copy, the master copy, in the system at all times....In our implementation, the master copy is never deleted". As described above the master copy is local to the user updating the file, i.e., the master copy is local to the remote computer. Therefore, the master copy and the distribution of the master copy teaches away from the claim requirements of determining a plurality of remote storage locations based on the pattern of requests for the requested file and storing the requested file corresponding to the filename at the determined plurality of remote storage locations.

Should the Examiner maintain the rejection the Examiner should indicate which elements of the cited Porcar corresponds to: (A) the requested file of the claim requirements; and (B) the plurality of storage locations where the requested file is stored, and which lines of the cited Porcar teaches or suggests the claim requirements of (I) determining a plurality of remote storage locations based on the pattern of requests for the requested file; (II) storing the requested file corresponding to the filename at the determined plurality of remote storage locations.

Additionally, the motivation of the cited Porcar of reducing the traffic an order of magnitude as compared to single copy policies (Porcar 5.4 conclusions) used by the Examiner to modify the system of the cited Xu with the teachings of the cited Porcar is improper. The reduction of traffic in the cited Porcar is caused by the removal of "copies that exceed a retention cost based on storage costs and update traffic costs" (cited Porcar, page 134). Therefore, the cited Porcar is motivating reduction of traffic by removing copies of files. If copies of files are removed in the system of the cited Xu then when requests are made to the data movers of the cited Xu the requests from the client cannot not be satisfied and the system of the cited Xu would be inoperable. Therefore, modifying the system of the cited Xu according to the motivation provided by the cited Porcar is improper as it would lead to an inoperable system in the cited Xu.

For the above reasons, claims 6, 19, and 32 are patentable over the cited art.

Am dt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

Claims 7, 20, 33

Claims 7, 20, 33 depend on claims 6, 19, 32 respectively, wherein one determined remote storage location is at a geographical location that is more proximate to the remote computer having more requests for the requested file than other remote computers.

The cited Porcar (section 5.1.6 distributing the updates) used in rejecting the claim requirements discusses that when a master copy has been updated, the remaining copies are brought up to date by transmitting all updates in a batch. Reads to local copies are made inexpensive. Files are synchronized. A weighted voting mechanism and file version numbers are used to decide what are the files that contain current information. Nowhere does the cited Porcar teach or disclose the claim requirement that the one determined remote storage location is at a geographical location that is more proximate to the remote computer having more requests for the requested file than other remote computers.

Additionally, there is no motivation provided by the Examiner to combine the teachings or suggestions of the cited Porcar, the cited Xu and the cited Enoki to arrive at the claim requirements of claims 7, 20, 33.

For the above reasons claims 7, 20, 33 are patentable over the cited art.

Claims 8, 21, 34

Claims 8, 20, 33 depend on claims 6, 19, 32 respectively, wherein one determined remote storage location is selected from the plurality of remote storage locations to minimize a distance the requested file is transmitted between each remote computer and the one determined remote storage location based on the number of requests for the file from each remote computer.

The cited Porcar (section 5.2 Migration policies) used in rejecting the claim requirements discusses migration policies for files in a distributed system based on an extension of the space time working set policy (Porcar: page 123) The space time working set policy removes any copy based on fetching costs to storage costs, and a ratio of update communications to storage costs.

Amndt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

Nowhere does the cited Porcar teach or suggest the claim requirement that the one determined remote storage location is selected from the plurality of remote storage locations to minimize a distance the requested file is transmitted between each remote computer and the one determined remote storage location based on the number of requests for the file from each remote computer.

Additionally, there is no motivation provided by the Examiner to combine the teachings or suggestions of the cited Porcar, with the cited Xu and the cited Enoki to arrive at the claim requirements of claims 8, 20, 33.

For the above reasons claims 8, 21, 34 are patentable over the cited art.

Claims 13, 26, 39

Claims 13, 26, 39 depend on claim 10, 23, 36 respectively and further require:
receiving a first response code from the server in response to the first request; and
receiving a second response code from the storage location in response to the second request.

The cited Xu (col. 10, lines 14-19) discusses locking, returning metadata, writing new file attributes, etc. Nowhere does the cited Xu teach or suggest the claim requirement of receiving a first response code from the server in response to the first request; and receiving a second response code from the storage location in response to the second request.

Should the Examiner maintain the rejection of the claims the Examiner is requested to indicate which element of the cited Xu corresponds to:

- (a) a first response code
- (b) a first request
- (c) a second response code
- (d) a second request.

For the above reasons claims 13, 26, 39 are patentable over the cited art.

Claims 40, 42, 44

Amtd. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

Claims 40, 42, 44 depend on claims 1, 14, 27 respectively and further require that the remote computer be a source code management system client, wherein the metadata is kept more proximate to the server than to the source code management system client, wherein the server communicates the one storage location address to the network for transmission to the source code management system client, and wherein the one storage location is determined by the server based on a history of request patterns from a plurality of source code management system clients.

Claims 40, 42, 44 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Xu, in view of Enoki, in view of Whidby, and in view of Porcar.

The Examiner has indicated that FIG. 18 of the cited Xu teaches or suggests that the metadata is kept more proximate to the server than to the client. FIG. 18 of the cited Xu shows that the metadata 332 is more proximate to data mover #2 than to data mover #1. However the data mover #1 and data mover #2 of the cited Xu are both servers and neither are clients. The clients of the cited Xu are client #1 and client #2 (reference numeral 46 and 47, figure on cover page of the cited Xu). Therefore the cited Xu does not teach or suggest the claim requirements that the metadata is kept more proximate to the server than to the source code management system client.

Additionally, the motivations provided by the Examiner to modify the system of the cited Xu with the teachings of the cited Whidby, Enoki and Porcar are not proper. The motivation provided by the Examiner are as follows:

- (a) elimination of the need for the developer to perform version management on the files (to modify the cited Xu with the cited Whidby)
- (b) easy way of optimizing file handling mechanisms (to modify the cited Xu with the cited Porcar).

Eliminating the need for the developer to perform version management on the files is a general characteristic of any source code management system, and many different types of source code management system may be constructed based on such motivations, and such general motivations that lead to many different alternative systems may not be used to reject the specific

Arndt, dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

claim requirements. Similarly, optimizing file handling mechanisms in an easy way can lead to many different solutions, for example, files can be placed based on network traffic patterns or directly at the client, and do not specifically motivate combining the claim requirements of the one storage location being determined by the server based on a history of request patterns from a plurality of source code management system clients to modify the system of the cited Xu to arrive at the claim requirement.

For the above reasons, claims 40, 42, and 44 are patentable over the cited art.

Claims 41, 43, 45

Claims 41, 42, 45 depend on claims 10, 23, 36 respectively, wherein the client is a source code management system client, wherein metadata corresponding to the file is kept more proximate to the server than to the source code management system client, wherein the server communicates the storage location address to the network for transmission to the source code management system client, and wherein the storage location is determined by the server based on a history of request patterns from a plurality of source code management system clients.

Claims 41, 43, 45 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Xu, in view of Enoki, in view of Whidby, and in view of Porcar.

The Examiner has not indicated where the cited Xu teaches or suggests the claim requirement that the metadata is kept more proximate to the server than to the client. In other parts of the office action (e.g., in the rejection of claims 40, 42, 44), the Examiner has indicated that FIG. 18 of the cited Xu teaches or suggests that the metadata is kept more proximate to the server than to the client. FIG. 18 of the cited Xu shows that the metadata 332 is more proximate to data mover #2 than to data mover #1. However the data mover #1 and data mover #2 of the cited Xu are both servers and neither are clients. The clients of the cited Xu are client #1 and client #2 (reference numeral 46 and 47, figure on cover page of the cited Xu). Therefore the cited Xu does not teach or suggest the claim requirements that the metadata is kept more proximate to the server than to the source code management system client.

Amend. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

Additionally, the motivations provided by the Examiner to modify the system of the cited Xu with the teachings of the cited Whidby, Enoki and Porcar are not proper. The motivation provided by the Examiner are as follows:

- (a) elimination of the need for the developer to perform version management on the files (to modify the cited Xu with the cited Whidby)
- (b) easy way of optimizing file handling mechanisms (to modify the cited Xu with the cited Porcar).

Eliminating the need for the developer to perform version management on the files is a general characteristic of any source code management system, and many different types of source code management system may be constructed based on such motivations, and such general motivations may not be used to reject the specific claim requirements. Similarly, optimizing file handling mechanisms in an easy way can lead to many different solutions, for example, files can be placed based on network traffic patterns or directly at the client, and do not specifically motivate combining the claim requirements of the one storage location being determined by the server based on a history of request patterns from a plurality of source code management system clients to modify the system of the cited Xu to arrive at the claim requirement.

For the above reasons, claims 41, 43, 45 are patentable over the cited art.

Conclusion

For all the above reasons, Applicant submits that the pending claims are patentable over the art of record. Applicants have indicated appropriate fees. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0449.

The attorney/agent invites the Examiner to contact him at (310) 557-2292 if the Examiner believes such contact would advance the prosecution of the case.

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By: Rabindranath Dutta

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Amdt. dated June 21, 2005
Reply to Office action of 04/21/2005

Serial No. 10/038,165
Docket No. TUC920010058US1
Firm No. 0018.0102

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